

*Newcomb's Fundamental Catalogue: Notes and Errata.*  
By W. G. Thackeray.

*Notes.*

The places and proper motions of the two following stars, the first in R.A. and Dec., the second in R.A. only, do not appear to be correct, apparently owing to the Piazzì places being discordant.

The following data, reduced to 1900 with Struve's precession and no proper motion, have not been corrected for systematic differences of the catalogues.

The Groombridge Catalogue places are from the new reductions.

No. 1464.

Catalogue.	R.A. 1900.	Epoch.	No. of Obs.	Dec. 1900.	Epoch.	No. of Obs.
	h. m. s.			° ' "		
Piazzì xxii., 36	22 9 34.44	1800	10	38 43 9.5	1800	7
Groombridge, 3716	34.88	1809.9	6	6.54	1809.9	6
Radeliffe, 5612	34.97	1849.7	2	7.30	1849.8	2
Greenwich (1860), 1859	34.99	1859.7	4	6.79	1859.8	6
Brussels, 6189	34.95	1869.1	3	7.13	1869.1	3
Greenwich (1872), 2085	34.98	1872.2	5	6.76	1872.2	10
" (1880), 3718	35.03	1881.1	3	7.05	1881.4	5
" (1890), 6189	35.12	1892.3	5	7.28	1891.1	10
Newcomb, 1464	35.489	1900.0		6.55	1900.0	
	P.M. + 0.0126			P.M. + 0.021		

No. 1556.

Catalogue.	R.A. 1900.0.	Epoch.	No. of Obs.
	h. m. s.		
Piazzì xxiii., 101	23 25 23.63	1800	19
Groombridge, 4078	24.50	1809.8	12
Radeliffe, 6092	24.45	1845.1	5
Brussels, 10536	24.60	1868.1	4
Helsingfors, 14105	24.55	1871.8	2
Greenwich (1890), 6681	24.68	1893.3	10½
Newcomb, 1556	24.960	1900.0	
	P.M. + 0.0072		

*Errata.*

Newcomb No.

60. Secular variation in Dec. 1900 for  $-44''.18$  read  $-54''.18$ . No. in Bradley Insert 65.

1589. Seconds of R.A. 1875 and 1900 appear to be 1<sup>s</sup> too great.

*Another Form of Micrometer for Measuring Star Positions.*

By H. C. Russell, C.M.G., F.R.S.

When working with the beautiful Star-measurer designed by Sir David Gill, I noticed the accuracy of the work, and its convenience for the purpose ; but I was struck with the time taken to move the micrometer spider lines across a réseau square, and I came to the conclusion that it would be an improvement to have a quicker motion than the screw provided, without reducing the accuracy. I have also provided that microscopes should conveniently and rapidly read the positions in minutes, seconds, and tenths of seconds of arc, and the reader writes them down with a small type-writer, so that he need not take his eye from the microscopes, and can easily read and write them down in half a minute. So much is claimed ; let us see the mechanism.

*Fig. I.* (Plate 4).—Here the machine is in complete order for use ; A is a thin board to protect the graduated circles from the observer's breath, and the thin nickel-plated circles B and C were raised to give more room over the axes of the graduated circles.

*Fig. II.*—The thin board removed exposes the two graduated circles 5 inches in diameter : they are graduated only  $\frac{1}{4}$  of the circumference. This space is divided into 5 minutes, and each minute is subdivided into 60 seconds—that is, into the space of a réseau on the photographic plates. Each microscope has a grating in the eyepiece which divides every second into 10 parts. When at work the lower parts of the observer's hands rest comfortably on B and C', and the fingers take H H, and turning them either way move the circles, and they are read by the microscopes F and G, and recorded by a small type-writer (not shown in the photograph), so that each observer is conveniently placed, and has comfortable positions for eyes and hands. (Of details later.)

Plate 6 shows the details of the small cast-iron chambers under the graduated circles. Starting from plan and section, J is the exact counterpart of an ordinary microscope with cross motions (except that it has no screws so far), but instead of screws at H H there are placed pieces of the balance-spring of a watch, H, by which, instead of screws, the micrometer is moved. (See X Y plan and section and elevation and section Z Z.) H is attached to C in each axis of the graduated circles by a screw I ; and the milled-headed screw J E and G, resting on the other wheels D D, is for regulating the friction